5: Schwimmer E-4,5 (1966-1967) 1973
OJ23 Orokaiva OJ23
Mountain Orokaiva

so formidable and irresistible as to leave open no other option. For many Orokaiva, this became a certainty only as a result of what to us would seem an entirely unconnected event, namely the Mount Lamington eruption of 1951. The effect of this eruption on Orokaiva ideology is worth a brief analysis here because it provides evidence that the 'new day' ideology is still essentially based on the traditional exchange-oriented Orokaiva philosophy. We find that the cataclysm was universally ascribed by the Orokaiva to the breakdown in an exchange relationship with some *dema*, and that many believed this *dema* to have been the Christian God. On the basis of this theory, the Orokaiva were led to search for more effective mediating links between themselves and these powers, so as to avoid similar misfortunes in the future. Development activity and baptism were the most important of the mediating elements in which they placed their faith.

As I have already published a full survey of Orokaiva explanations of the eruption (Schwimmer 1969), my summary here will be brief. In 1966, during visits to Inonda, Hohorita and Sivepe, I interviewed a number of survivors about the explanation of the disaster given by people *at the time it occurred*. All informants were agreed that at that time the increasing rumbling in the mountain, the tremors, the smoke issuing from the crater, the showers of ash, the emission of stones and fiery particles, and finally the Peléan eruption, were all ascribed to the anger[6] of Sumbiripa, the god of the mountain, though there were varying explanations of the probable cause of that anger. These statements tallied with published evidence from two clergymen, both present in the Northern District at the time of the eruption, who refer to the people's fear of the anger of Sumbiripa (Tomlin 1951, Benson 1955).

Evidence of a different kind comes from two anthropologists (Belshaw 1951, Keesing 1953) both of whom interviewed survivors a few weeks after the disaster. Belshaw summarises Orokaiva explanations as follows:

> Some people said that this was God's visitation because they had disobeyed the Bishop's instructions to build new churches. Others said that God had punished them because they had not helped the Allies sufficiently during the war and because some of them had betrayed missionaries to the Japanese. (Others again mentioned) lack of co-operation in Mission and Government plans for development. (1951: 242)

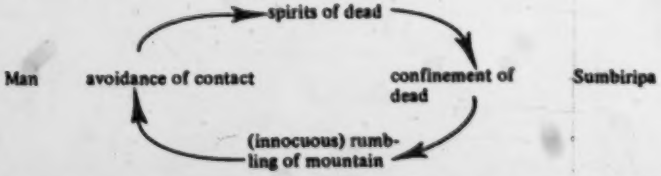
Keesing agrees with this summary, adding that the eruption resulted in 'strong feelings of insecurity and even of guilt in their retrospective look at the pre-eruption way of life'.

Many resident Europeans, including the Bishop of New Guinea, the Most Rev. David Hand, confirmed Belshaw's and Keesing's account, but the Bishop told me that the mission has since discouraged the Orokaiva from thinking that the Christian God harboured anger against them and expressed it with such indiscriminate violence.[7] Hence this explanation is no longer heard. People nowadays believe that the eruption was caused by the anger of Sumbiripa or, if they wish to display a modern scientific attitude, they will repeat what they have been told about vulcanology.

Explanations based on the anger of Sumbiripa, the government and the Christian God resemble each other in that they are all based on the concept of a

784 social exchange relationship in which the Orokaiva thought they had defaulted.
823 In the case of Sumbiripa, this relationship was a rather special one as Sumbiripa's
795 gift is the safe confinement of the dead, whereas man's gift is avoidance of any disturbance of Sumbiripa's mountain. Man mediates the relationship by sending his dead to Sumbiripa, whereas Sumbiripa mediates by emitting his usually innocuous rumbling. Before 1951, Sumbiripa had never erupted in living memory. We may express this in the following diagram:

MODEL 9



One theory of the eruption was that man had broken the exchange relationship by hunting on the mountain with guns. This disturbance angered Sumbiripa so that instead of innocuous rumbling he emitted the full blast of his immense and disastrous fury. The effect of breaking the exchange relationship with the Church was thought to be disastrous in precisely the same way. Just as the rumbling of the mountain suddenly became lethal instead of benevolent, so the 'communion' offered by the Church suddenly turned negative, dispensing retributive justice instead of mercy. Similarly, default in a social exchange relationship between human beings may lead the wronged person to give Alter misfortunes and diseases through sorcery, instead of the benefits he would otherwise bestow. If a relationship is broken, the wronged partner may respond by invoking negative mediating elements to obtain redress.

823 This dangerous trend may be reversed by expressing repentance, and by
797 receiving forgiveness (see models 1 and 3).[A] Subsequently, the offender will be more careful, if he is prudent, to stop the relationship from breaking down. Thus, after the eruption, the Orokaiva became more careful to carry out development activity (model 7)[B] and seek baptism (model 8).[C] The fact that the Anglican Mission denied that God had been angry would in no way diminish their solicitude, as such denials are always issued by offended exchange partners as part of the ritual of showing their forgiveness. Detailed empirical evidence given elsewhere (Schwimmer 1969) in fact shows that the eruption speeded up the development of the *iji eha* ideology among the Orokaiva. It would be wrong, however, to suppose that the supernatural fear propelling the Orokaiva towards development and baptism was due to a cruel deception by the mission or to irrational self-deception on the part of the people. It may equally well be regarded as a case of rational choice. It is not at all irrelevant to emphasize that development and baptism, in fact the whole *iji eha* ideology, was a sensible direction for the Orokaiva to take. The explanation of the disaster which they adopted was not a blind reaction to external vicissitude but rather the strategic reinforcement of a mythical charter for institutions mediating a valuable

A [See Category 829, pp. 58-9--Analyst]
B [See Category 657, p.75--Analyst]
C [See Category 797, p. 77--Analyst]

5: Schwimmer E-4,5 (1966-1967) 1973
OJ23 Orokaiva OJ23
Mountain Orokaiva

relationship. They could conceivably have chosen a different explanation which would have provided a charter for the reinforcement of quite different relationships. If the eruption had not happened at all, the Orokaiva would most probably have taken the same direction, but the charter validating development and baptism would have been weaker for some time. It may be that the exchange ideology would have weakened before development started. The eruption, however, seems to provide Church and government with a most formidable arsenal of negative sanctions in case the relationship is ever broken through the fault of the Orokaiva. We may conclude that the Orokaiva, by their belief in a new kind of divine intervention (through the *dema* figure Jesus Christ), have been encouraged to make new types of economic, social and religious exchanges, while maintaining their assumption of an exchange-oriented universe, and that their philosophy has provided them, at least for a time, with a workable rationale for the contemporary world.

REFERENCES

1. The traditional time concepts of the Orokaiva are probably mainly restricted to what Evans-Pritchard (1939) called 'oecological' and 'structural' time. It is, however, very likely that they also had 'an historical perspective of their own, whatever its depth may be' – rather similar to the one described by M. Panoff for the Maenge (1968). Such a perspective would include not only the *dema* but also the scission of lineages and the settlement of villages. An Orokaiva described lineage fission to me by drawing a tree on the ground – using precisely the same symbolism as Panoff's Maenge informants. Orokaiva stories of the settlement of villages also abound, usually giving the name of the tree by which the settlers 'sat down' when they arrived.

Pocock (1964) has argued that as culture change becomes more rapid under the impact of European contact, traditional time concepts undergo structural transformation to make them more nearly explanatory of the actual course of events. I believe that the identification of Jesus Christ with a *dema*, as argued in this chapter, is an example of such structural transformation.

2. For the location of Torogota, see Fig. 10.
3. Information on this point was derived from several local planters, including Mr. C. E. Searle of Awala. See also Howlett 1965.
4. Details on communication channels between government and people are given in Schwimmer 1967, 1969.
5. The Sasembata mission station is not in Sasembata village but just north of Kongohambo. See Fig. 10.
6. Reay has reported that 'the natives had no knowledge, or legend, of an earlier eruption' (*apud* Taylor, 1958: 21). My own study (Schwimmer 1969) suggests that this view, while not strictly incorrect, needs to be modified. My sources are tape-recorded myths and Miss Nancy White's manuscripts (White, n.d.).
7. Interview with Bishop Hand, January 1967.

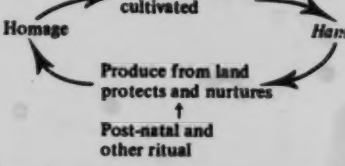
[p.82 is blank]

5: Schwimmer E-4,5 (1966-1967) 1973
OJ23 Orokaiva OJ23
Mountain Orokaiva

was thought to inhere in his old garden plot and in the products growing there, or more specifically perhaps in the water flowing through the garden, for it is in the water that the dead tend to live, even though in a more general sense they are everywhere in the garden, as well as in the abode of the dead under the mountain and in other places also. The transfer of the *hamo* to the child is a drawn-out process that may last a year or so. It is done through the mediation of the stick. A mother carries this stick with her every day as she goes to the gardens and she is supposed to hang the child from the stick as she does her work. I have actually seen another mother do this for months. The child draws soul substance through the stick all the time and as the taro and other crops fill out and become vigorous, the child will do the same. It is through this absorption of *hamo* that the child can later fulfil the promise made to the dead Jarata, namely to look after the garden from which he has drawn his life-force.

The ritual formulae spoken by the parents in the garden and quoted above both clearly have the form of a bargain, by which the spirit of the deceased is asked to give *hamo* (a combination of supernatural protection and nutrient strength) to the infant in exchange for proper homage. This transaction may be expressed in the following exchange cycle.

MODEL 12



Superficially, it may appear that the exchange cycle given here offers a generalisation that goes far beyond the data I have presented. My data present a transaction between a deceased and a particular couple, with one particular child, who promise to look after the land. My model, however shows a transaction between any spirit attached to a piece of land, and any cultivator. Yet it may rightly be argued that every couple cultivates, at one time or another, a large number of plots, and that only some of these plots are linked to their cultivators through post-natal rites performed in respect of themselves or their children. This argument, however, is irrelevant. Spirits are attached to every garden plot, and there is always some person charged with the care of those spirits. The senior member of an extended family, the 'father of the ground' (*enda mama*) has the ultimate responsibility to see that the spirits are not neglected. When he gives any cultivator a usehold over a piece of land, it is understood that this cultivator takes over the care of the spirits on the land. This care includes making food offerings to the spirit on a raised platform built for that purpose. More broadly, the responsibility to the spirit also involves the proper performance of all ritual and horticultural activities prescribed as parts of the cultivation cycle.

Chapter 2

The subsistence economy

a. Climate and soils

134 [139] 132 The neighbourhood has a warm, moist climate with an average annual rainfall of 160 inches (see Appendix C).[2] Sivepe is between 1,250 and 1,300 ft above sea level and nights are often cool. According to the C.S.I.R.O. soils survey (1954:11), the village is on a soil association of the Awala land system which has an 8-12 inch very dark brown top soil. Chemical tests suggest that these loams are fertile, rich in nitrogen and phosphorus. The fine-textured subsoils range from 10 to 22 inches in depth. The terrain is characterized by a gentle radial slope on wide planar ridges between the larger steep-sided streams flowing from Mt Lamington (5,634 ft) into the Kumusi River. Numerous smaller creeks, together with these streams, form an effective fine-textured radial drainage system.

133

● 823 134 The local people recognize 5 types of soil based on differences of colour, texture and moisture.[1]

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[1] (a) Hohori - any red soil; 2 subtypes are distinguished: i. without sand. This is popular for cultivation; ii. sandy. Avoided if possible as taro does not grow well in it.
(b) Gindiri - any soil which is stony or has a high sand fraction. It may be used for cultivation but in the dry season taro grown in it becomes stunted and the corms are small.
(c) Mume - this soil is the predominant type in the area. It is the dark brown loam described in the C.S.I.R.O. report as covering almost the whole of the soil association. It is certainly the most widely used and together with Hohori, type i., it gives the best yields.
(d) Pusu - any clay. Taro growth is stunted.
(e) Pegare - swampy or waterlogged soils. These are sometimes used during a dry season.

A, [See Category 132, p.109--Analysis]

613 general information is already beyond the immediate recall of the surviving Jegase men.

The Sivepe people who belong to Timumu, the second clan represented in our sample, are members of 2 lineages, Pekuma and Hajejopa. Other than clanship the two can reckon no link originating in the 'district' from which both emigrated independently to the neighbourhood of Sivepe; their closely parallel histories of migration, subsequent residence and marriage account for the present firm connection between them.

The largest exogamous groups are lineages; but this rule readily lapses when a lineage achieves a much wider span than average, especially if it becomes scattered for any length of time or in more than one 'hamlet group'.

621 [103] [128] All land around Sivepe and neighbouring villages is divided into named areas which we will call 'blocks'. Each is usually a locality deriving its name from a prominent local natural feature - often a tree or a grove of trees, hence Korinasusu or Korinaturu. For any subdivisions of a block we use the term 'section' and we refer to either 'blocks' or 'sections' as 'parcels' of land.[1] No correlation is implied between the type of a parcel and the type of rights held to it.

423 [428] All land constituting territory of the Jegase, Timumu or others in the neighbourhood is divided into parcels which are the holdings either of individuals or of full brothers. A man's rights and other property are ideally inherited patrilineally. In some circumstances a definitive division of the father's land may be made among his sons before his death. This usually takes place if the sons already have their own households, if the father is no longer very active in village life or if the younger men are [562] only half-brothers. We know of no instances of a daughter receiving a particular share at the time of such an allocation, but we refer elsewhere to circumstances where women hold land 428 (see Appendix E, p.111).[A] In other cases brothers may jointly hold all the land inherited from their father. This seems to apply particularly to instances where a younger brother is unmarried or has taken temporary employment away from the village

[823]

[1] People commonly use the name of a block to refer to any parcel of land, for instance in listing their landholdings. They draw attention to any specific distribution of sections of 1 block among different people only when the context requires them to. On Map 2, where 1 man holds adjacent blocks or 2 adjoining sections on 2 adjacent blocks, the boundary between them is not shown. Only boundaries between different landholders are indicated. [B]

A. [See Category 428, p. iii--Analyst] B. [See Category 103, p 40--Analyst]

461 In 1944 attempts were made to revive the communal plantations but employment by the American military in the Inonda-Oro Bay area and other work for Allied troops made the people revise their ideas on the value of their labour[1] and resulted in a general lack of enthusiasm for the cash cropping schemes.

731 The eruption of Mt Lamington and the subsequent floods destroyed many villages and gardens and some 5,000 survivors had to be evacuated to refugee camps at Oro Bay and Ilimo. While the majority were resettled within four months, 1,500 people from within a 'danger area' of eight to twelve miles around the active crater were obliged to remain at Ilimo camp until July 1951, or live with clansmen elsewhere, and re-occupied their villages only over a period of years.[2]

731 Many Orokaiva viewed the disaster as divine punishment, in
●823 particular for their lack of co-operation with governmental and mission programmes,[3] and they were reported to deeply appreciate the extensive relief measures, including food, tools and medical services, provided by the Administration. Subsequent Administration
464 reports remark on the willing co-operation of the people in voluntary road construction and their renewed interest in cash cropping.[4] However, once the need for producing food as a relief measure had passed, all staff of the Department of Agriculture were withdrawn from the District. Interest waned and was reported to be 'completely dead' in 1953.[5]

(d) Activities of the Anglican mission

797 Apart from very limited activity by Seventh Day Adventists in the Pongani area and Lutherans among highland labourers at Sangara, the Anglican church is the only mission working in the Popondetta sub-district. It first established itself at the Mambare River in 1900 and activities were gradually extended southward along the coast, but it was not until the 1930s that stations were established among the inland Orokaiva, at Isivita and Sangara. In 1965 the

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1 Patrol Report, Higaturu, 1543/44; Crocombe 1964:21.

2 See Rimoldi 1966:45-6 for a fuller description.

3 Belshaw 1951b:242; Keesing 1952:18. However, some informants viewed it as punishing the Europeans (thirty-four of whom were killed) either for the hangings at Higaturu and Sangara, or for not having provided the Orokaiva with education and access to income.

4 This was in part an expression of the high prices obtaining during the Korean War.

5 DDA, Popondetta, DS-17-4-5.

[194] regrowth. They are lower lying than the surrounding savannah and are poorly drained.

(ii) The Girua Association consists of coarse textured, recent riverine deposits covered with forest or regrowth. It lies beside the Sambogo and Girua rivers. The association covers about one fifth of the Inonda lands and, being permanently moist and apparently fertile, these soils are extensively used for food [829] gardening. The local people have given this soil type the name tumene.

(iii) The Warisota Association occurs on the lower slopes of the valleys of the Hydrographers Range, where the Sambogo river and its tributaries emerge from the foothills. The soils are recent, well drained, medium textured clay loams, becoming fine textured with depth, and being grey to grey-brown in [195] colour. They are covered with a heavy forest or secondary growth vegetation, but there is little accumulation of organic matter in the topsoil.

[241] These soils, which cover approximately one fifth of the Inonda lands, are used for food gardens, although they are not favoured because of their tendency to dry out during the dry [828] season. On the higher ground they are known to the Orokaiva as hora while on the lower ground they are known as hohori. The hohori runs into the still lower lying tumene of the Girua Association.

(iv) The Hydrographer Association lies in the deeply dis- [197] sected foothills of the Hydrographers Range. The soils of this association are shallow, stony and poorly differentiated, carrying a hill-type rain forest. They are not favoured for gardening and the people use this land only for foraging and hunting. Its agricultural potential has been assessed as "negligible"(1), as both topography and soils are unfavourable for the growth of crops. It occupies approximately one fifth of the total area of the Inonda land.

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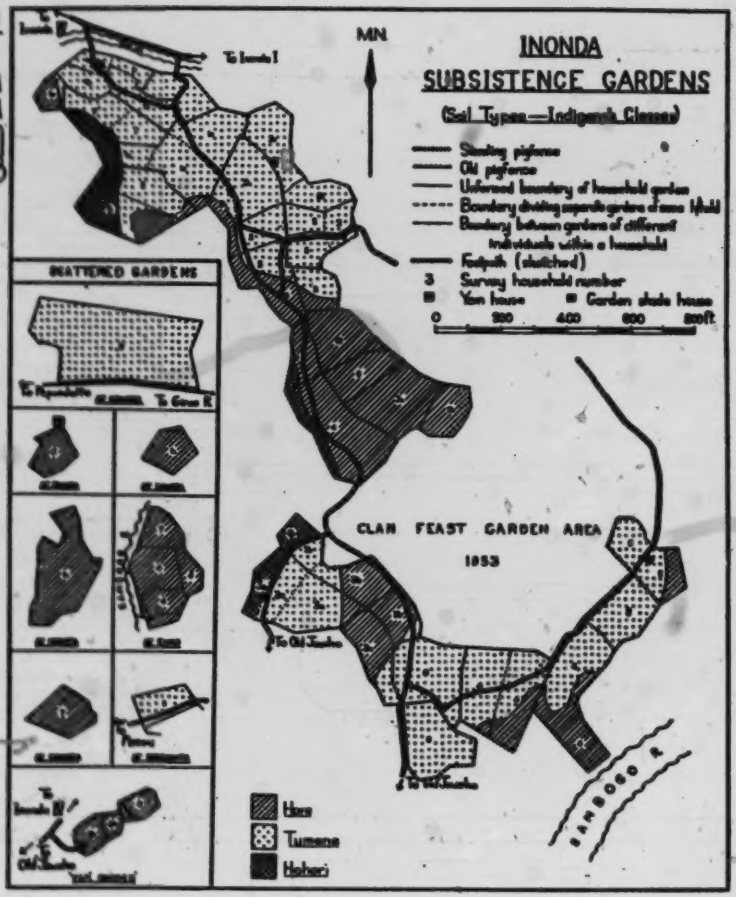
(1) Ibid, page 26.

14: Crocombe & Hogbin E-5 (no date) 1963 OJ23 Orokaiva OJ23
Inonda



21: Belshaw E-5 (1951) 1951 OJ23 Orokaiva OJ23
Mount Lamington

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SOCIAL CONSEQUENCES OF THE MOUNT LAMINGTON ERUPTION[1]

By CYRIL S. BELSHAW

THE eruption of Mount Lamington in the Northern Division of Papua in January, 1951, was accompanied by the immediate and total destruction of Government Station and Anglican Mission Station and the death of about 4,000 people. About 5,000 natives were evacuated from the blast perimeter to refugee camps at Oro Bay and Wairope; the Wairope camp was destroyed by floods a few days later and moved to Ilimo on the Kokoda Road. The villages of over 1,500 of the survivors were either destroyed or considered to be unsafe for habitation. In addition to these people those who had their gardens near the rivers which were fed from the Lamington slopes saw them destroyed by floods, while others on the Managalasi (southern) slopes of the volcano, not directly affected by blast, had gardens ruined by volcanic dust. This article is concerned principally with the survivors directly affected by the blast, that is those people living between Popondetta and Wairope who either had their homes and gardens destroyed or who are acting as hosts to such refugees, and who may be described as the Periho section of the Orokaiva people.

Such a sudden and devastating experience is a shock, not only to the physical and mental systems of the people who suffer it, but to the whole fabric of society. It will be many years before all the consequences can be clearly defined: in the meantime this article may serve as a tentative analysis and in some measure a historical record.

According to European eye-witnesses now in the area, the people were disturbed but not unduly frightened during the five days between the first signs of eruption and the devastating blast. The night before the blast, when the sky was darkened and tremors were felt, large numbers visited missionaries and government officers

[1] This paper is based on a two weeks visit to the area during April and May, 1951. I wish to thank His Honour the Administrator of Papua and New Guinea for making the visit possible; also the re-settlement staff, all of whom were so generous with hospitality and information.

21: Belshaw E-5 (1951) 1951 OJ23 Orokaiva OJ23
Mount Lamington

823 for advice. The tragedy is that subsequent events were unpredictable. When
[731] the blast came it was so swift that there could only have been two or three minutes' warning, and the phenomenon was so far beyond experience or imagination that the people were too numbed to panic. Good order was maintained and the refugees successfully assembled in camps in a remarkably short while. Within two days camps were operating and supplied by air.

823 As the people settled and began to take stock of events, they began to seek for
731 explanations. An aeroplane had been flying close to the mountain at the time of the blast, escaping in the nick of time. One rumour had it that this aeroplane had
[784] dropped a bomb. Most explanations were, however, religious in nature. Some people said that this was God's visitation because they had disobeyed the Bishop's instructions to build new churches. Others said that God had punished them because they had not helped the Allies sufficiently during the war and because some of them had betrayed missionaries to the Japanese. By April most of these specific rumours
[783] had been countered. There remained, nevertheless, an almost universal belief that God had punished the people for their sins, and these sins were enumerated in general terms, such as lack of co-operation in Mission and Government plans for development. This sense of guilt is a most important factor in resettlement attitudes.

731 Another factor affecting resettlement attitudes was the speed, scale and nature of the relief measures. The war-time miracle—the rapid mobilization of resources—was repeated by the European, not for purposes of destruction but for the help of the Papuan people themselves. Once again the people asked themselves how the European was able to do this; and they were grateful that their need had been met.

Relief was not only provided in the form of rations and building sites where the people erected humpies for temporary shelter. Medical services in the camps were directed not so much towards the healing of the wounded, for few of these had survived, so much as towards the maintenance and improvement of general health. The Higaturu Hospital was completely destroyed, but excellent field dispensaries were set up at Oro Bay, Popondetta and Ilimo. At Ilimo there was also a baby welfare clinic, staffed by two European nurses and Papuan assistants. In a few weeks the Ilimo dispensary and clinic had established itself as a popular institution, serving the needs of surrounding villages as well as of the camp. The large numbers treated bore ample testimony to the scale of medical need in the district and the regularity of out-patient attendance was notable.

[673] The Government maintained a technical training school at Higaturu, and the Anglican Mission had an advanced school at Sangara. Both of these were destroyed with almost complete loss of staff and pupils, many of whom were almost ready for graduation. Immediate relief measures could do little to replace this critical loss. But the Mission, with Government assistance, recommenced village-level schools in the camps. At Ilimo particularly the Government started adult education classes, partly to provide something useful for the people in their leisure hours, but mainly

PART I: INFLUENCES EXTERNAL TO THE COMMUNITY

CHAPTER 1: The Eruption and Evacuation of Survivors

Section 1: Mount Lamington: Cosmic Centre and Volcano

823 773 Mount Lamington has long had, to the Orokaiva people, a significance somewhat similar to that of Mount Olympos to the Ancient Greeks. It is the omphalos kosmou of Orokaiva myth: the origin of death, warfare, fire--and generally of all those cultural elements established by the transforming deities--are traced to the Mountain, while the division of the people into distinct language groups is likewise a primordial event that occurred on the Mountain. [775] The departed spirits of the Orokaiva have their home there, headed by the first man to have suffered death, Sumbiripa, to whom all the activity of the Mountain is ascribed. Signs from Sumbiripa reach the living regularly, because at all times the Mountain has rumbled and sent forth tremors and smoke.

These facts appear clearly from the cycle of myths, centred on the Mountain, collected by me in the vernacular in 1966-1967. The cycle is far too elaborate to be explained as a recent development. It might, however, be argued that before the disaster of 1951, the omphalos kosmou was located elsewhere and that it has since been "relocated" to Mount Lamington. The fact that F. E. Williams was unaware of the mythical importance of Mount Lamington gives some force to this contention. As against this there is the testimony of missionaries (Tomlin, 1951; Benson, 1955) who knew the Orokaiva well before the eruption and who had no doubt that Mount Lamington [776] was then regarded as the home of the dead. Even more conclusive are statements from numerous informants at Hohorita and Sivepe, all of whom interpreted the eruption as the work of Sumbiripa, the Lord of the Dead, who lived in the Mountain.

[774] Does this mythology provide evidence for previous volcanic eruptions? Marie Reay, who was in the district at the time of the eruption, found that "the natives had no knowledge, or legend, of an earlier eruption." (Quoted in Taylor 1958; 21.) I wonder, however, whether in those chaotic days she had much opportunity to make a systematic study of the mythology. I collected a myth of the origin of death which is certainly suggestive of earlier volcanic activity though it is impossible to be sure of the physical phenomena to which it alludes. I recorded four versions of this myth in full vernacular texts, one from Sivepe, one from Torogota (another village in the Sasembata area), one from Hohorita and one from a

823 collection of vernacular texts written by a young man from Kiorota
793 in 1952 (White, n.d.).

According to all versions, a man named Sumbiri and his wife Suja went hunting on the Mountain. They stayed there for several weeks, while the husband caught wallaby and cuscus and found some birds' eggs. In three of the versions, the Mountain began to rise while Sumbiri (ignoring a taboo) slept with his wife. Several crags then formed on one of which the couple was lodged, unable to climb down. Separated from the world, they leapt into the crater that had formed between the crags. The fourth version, collected at Hohorita and belonging to the Sangara tribe, describes a fight between a pig (presumably the first pig ever hunted by man) and a large dog or dogs, during which the mountain began to change shape. Originally it was "one Mountain but now it became divided into parts so that there remained a number of peaks too steep to climb up or down." Pig and dog(s) disappeared into the hole that was formed; the man and woman found themselves separated on different crags and died of loneliness and despair. The mountain is called Sumbiripa Kanekari, "The Separation of Sumbiripa." This Sangara version is notably the richest in mythological content.

[174] Is it possible that these versions all originated after the eruption? Though it cannot be ruled out, it seems unlikely. One of them was written down by a student mission teacher as early as 1952; the Sivepa version recorded by me presents the mythical event and the eruption of 1951 as two distinct successive events. None of the events that most deeply impressed people about the eruption of 1951 (explosion, flame, darkness, wind, deaths) are incorporated at all in any of the versions. It seems more likely that the myth refers to an event remote in time and not remembered more clearly than most modern Europeans are aware of the factual basis of the Book of Genesis. Nonetheless, the myth points to an earlier structural change in the Mountain, caused by volcanic activity, and sufficiently recent to have left some impact on human memory.

Section 2: Preliminaries of the Eruption

133 For some time prior to the eruption, Mount Lamington behaved
731 rather unusually. Orokaiva and Europeans each gave their own explanations for this unusual behaviour. The Europeans, being politically more powerful, were able to impose their plan on the Orokaiva. The Europeans felt no qualms in doing so, as they regarded their own views to be scientifically based, whereas the Orokaiva view was based on the presumed anger of Sumbiripa. As we shall see, this was a case where bad science was more dangerous than sound superstition.

133 Just when these preliminaries started is not clear; it may have been one week before the disaster or several weeks. The rumbling and tremors in the mountain, which were usual enough, became more severe; smoke was beginning to come out of the crater in thick puffs high into the sky; the number of craters rose from one to four or five. Ash covered the peaks, areas along the slopes became burnt; sometimes there were flashes of fire; several landslides appeared as brown streaks in the forest. Swarm-pattern earthquakes became widely felt throughout the area. On Thursday, 18 January 1951, the more active phase of the eruption began (Taylor, 1958). The emission rate increased throughout the day; the smoke gushing forth "at a great rate" varied from black to grey and spasms were noted in the crater activity. The emission was described by more distant observers as a slow-moving continuous dark-grey column ascending to many thousands of feet. A survivor who looked at the mountain through a telescope on that day noticed that a large hill had built itself up between the hills at the foot of Lamington and the mountain at the rear. That night, the mountain was shooting fire like an immense fire works. In the Sivepa area, at this time, and on Friday, stones were falling on the gardens, earthquakes were very severe and some houses had collapsed.

731 The Orokaiva interpretation of these events will be clear from what I have already written. It is explicitly supplied by Benson (1955) who reported that the fearsome happenings in the mountain were ascribed to the anger of Sumbiripa. I shall show later that the same view was taken in Sivepa. The clearest description [114] of the state of mind of the people close to the mountain (those who were mostly to become the victims of the blast a few days later) was given in a letter by Margaret de Bibra, head teacher at Martyr's School in the Sangara Anglican Mission. Miss de Bibra died during the eruption but her letter was found after her death (White, n.d.).

> The Papuans--well, most are calm, many are apprehensive and some really frightened, especially those whose villages are near the mount. It is all understandable, in fact it is to their credit that there is no panic. Lamington has not been a volcano within the memory of living man, nor in the legend of the people. (But see above, E. 5.) True, Lamington [813] is feared as the home of spirits and no local man--even Christian--will venture to the top. As one of our Church Councillors said: 'The mountain people do not understand. They are afraid. We understand a little and we are afraid too. Our fathers did not know of it. The trembling of the earth--yes, but not

731 In the second phase, which is well documented through the reports of Keesing and Belshaw, attitudes were more complex. Our present concern is solely with the question whether the evacuees continued to regard absence from their home villages as necessary. Later, we shall refer to the gratitude that was shown to the Europeans for helping them in their hour of need, the extraordinary degree of cooperation and orderliness that prevailed, the sense of guilt that may have motivated the people in their compliant attitudes. We shall also refer to the anxieties the people underwent at this period: the usual anxieties of camp life, the uncertainties of the whereabouts of many kinsfolk who might or might not be alive, the fear that somehow they would be unable to [823] get their land and villages back. Informants stressed to me that the worst sufffering of those days was simply home sickness, the sense of desolation at being separated from the places to which they so intimately belonged. Hence, in spite of the fear for the mountain, the Orokaiva very soon began to exert pressure upon the camp authorities to let them return home.

731 This pressure is especially evident from Belshaw's data:
657 people argued that the Europeans would not necessarily know what would be a safe area should the volcano blow up again--hence the maintaining of the camps could not logically be justified by their supposed safety (Belshaw, page 244). When the authorities inquired whether the people favoured consolidation of villages, many of the answers "were framed so as to assure the authorities that all would be well if they left the refugee camps immediately; everything was subordinated to this end." (Belshaw, page 246). Every excuse was given for making trips to the home area, and the authorities seem to have tried to restrict the number of persons joining such expeditions; also, they evidently forbade women to join their husbands, all no doubt to ensure that people would really return to camp. In spite of this battle of wits, the period was one of relatively excellent Orokaiva-White relations. The point is, however, that the evacuation camps were soon regarded as increasingly unpleasant and unnecessary.

731 Attitudes also varied according to the distance between the camps and the home villages. At Cape Killerton and Oro Bay,
[823] the Orokaiva were deeply disturbed at being in foreign territory, far from their homes, and close to the sea which they particularly feared. I was told this by all Sangara informants and it is also
[753] stated in Keesing's report. My informants also ascribed sickness of many people, especially old people, to homesickness. This does not conform to the medical record, as presented to me verbally by Dr. Gunther who was personally in charge of medical care in the
[164] camps. Dr. Gunther said there was not much sickness; there were cases of spinal meningitis and paratyphoid, which he ascribed to close living together in the camps and which were "not very much
[753] more" frequent than in any camp. It is significant, however,

133 Sivepe lies on an altitude of 1,300 feet, seven miles from
Mount Lamington. Although the mountain rises to a height of 5,634
[361] feet, most present settlements are on the lower slopes, rarely very
much higher than Sivepe. A wide range of annual and perennial
[241] crops, including taro, on which the Orokaiva depend, do not grow
well at altitudes much above 1,500 feet. Thus, the eruption has
[731] had no appreciable permanent influence on the location of village
sites. The restricted area is at present a circle of two miles'
[361] radius from the crater of Mount Lamington; there are not now, nor
were there before the eruption, permanent settlements closer than
four miles from the crater.

The Sivepe terrain (if I may borrow the terminology of the CSIRO report) is characterized by a gentle radial slope on wide planar ridges between the larger steep-sided streams flowing from Mount Lamington into the Kumusi River. Numerous smaller creeks, together with these streams, form an effective fine-textured radial drainage system. Drainage is facilitated, moreover, by the extreme porosity of the soil.

134 Sivepe (see Map II) is on a soil association of the Amala
land system which has an 8 to 12 inch very dark brown topsoil.
Chemical tests suggest that these loams are fertile, rich in
nitrogen and phosphorus. The fine-textured subsoils range from 10
[823] to 22 inches in depth. Rimoldi points out that this dominant soil
type, which the Orokaiva call mume (a word whose principal meaning
is night, darkness), is only one of five found in the district and
distinguished by Orokaiva by colour, texture and moisture. The
others are hohori (red), which is popular for cultivation if it is
not sandy; gindiri (stony, with high sand fraction); yusu (clay)
and pegara (swamp). Mume is the most widely used soil for gardens.

In contrast, Inonda (see Map IV) is no more than 200 to
133 300 feet above sea level. It lies partly (to draw on the CSIRO
report again) on the flood plains of the Girua and Sambogo rivers
and partly in the moderately sloping foothills of the northern
side of the extinct strato-volcanic Hydrographers Range. The
Sambogo and Girua Rivers flow in a northerly direction draining
from the Hydrographers Range and Mount Lamington respectively.
They are swiftly flowing, rocky-bedded rivers which, together with
their numerous tributaries, give the area a moderate to good
drainage system. To the east the drainage system in the vicinity
of the Myola Lakes has been blocked by recent volcanic activity and
drainage is much poorer. A vast coastal plain between 20 and 30
miles wide stretches north-westwards from the Hydrographers for
over 60 miles. Inonda lies at the southern end of this plain,
about 15 miles inland from the coast.

134 Crocombe and Hogbin classify Inonda soils on the basis of
five soil associations listed in the CSIRO survey: (1) the
Popondetta Association, with black to very dark topsoil underlain
by yellowish-grey volcanic sand subsoil. The topsoil looks like

A [See Cat. 116, p. End Map 3--Analyst]
B [See Cat. 116, p. End Map 4--Analyst]

654 After resettlement in Awala and other villages, the government
731 made no attempt to discourage the resettled people from making contact with other villages, as long as they did not begin to reside within the area that was still restricted in May, 1951.

Section 3: Morale of the Relocated Community

731 In earlier chapters, I have already drawn attention to the
823 widespread homesickness of the evacuees and their insistence upon maintaining identification with the homeland. Undoubtedly, separation from this land compels the Orokaiva to abandon many of his customs and traditions of the past, because so many of these customs and traditions [852] arise out of association with the land. To give only one example, a ceremony thought to be necessary for the survival of a new-born child [794] is, even now, performed in a family garden. Separation from the family land makes such a ritual impossible. At Ilimo, traditional rituals were replaced to some extent by the unaccustomed frequency of Christian religious services which were always well-attended. This, however, was at no time accepted as a substitute for the old way of life.

731 Naturally, in the circumstances, people did not feel any pride
177 or satisfaction in their situation in the evacuation camps. Once they were resettled in new villages on their own land, they felt pride in the new villages and in the "new way of life" they had adopted. Sivepe [438] was proud, for instance, of having discarded its pigs. On one occasion they were bargaining to buy a pig from neighbouring Garambi which still [628] had its pigs. During the bargaining, a Garambi man taunted Sivepe about its lack of this kind of treasure. The Sivepe people haughtily called off the sale. Such pride and interest in innovation was associated with a sense of security regarding land tenure and Sivepe's status in relation to other villages. If Sivepe had not felt secure in its ideology of the "new way," there would have been dismay at Garambi's taunt about the lack of pigs. But nobody in Sivepe doubted the rightness of the choice that had been made.

731 152 [823] mountain, wholly on official rations, and with nothing to do, the people were a prey to all kinds of rumors as to what was going on elsewhere. Furthermore, these mountain people apparently could not conquer a fear of the sea, and this was reinforced by a rumor that a supernatural "tidal wave" was to occur along the coast. The camp director told how every night the more timid scattered on to the higher ground rather than sleep in the camp on the foreshore. Prior to the liquidation of this camp the authorities sent one of the leading men back to the big Ilimo camp and the home area so that he could return with a factual account of conditions and allay the other inmates' fears as far as possible. A strong current of tension running through this whole situation was: "What does Government intend to do?" All these behavioral conditions appear psychologically congruent with the long term personality norms.

731 361 199 The new group alignments of the camps and resettlement areas presented interesting tests as to how far larger aggregations could be structured effectively enough to show promise of permanence. This matter is particularly crucial to policy, and constitutes the major challenge from the viewpoint of "applied anthropology." Reference has been made in the foregoing to a controversy which arose as to whether this would be an appropriate occasion to resettle the survivors in centralized communities, or to allow them to scatter as before in a dispersed pattern of settlement consistent with safety. Some officials resented the idea that the catastrophe should be used to "put over" anything other than those rehabilitation operations that are in line with the habits and sentiments of the people. On the other side was an opposing official viewpoint, and a powerful Mission sentiment, that it would be in the long term interest to take the opportunity to concentrate the surviving Orokaiva into a small number of population centers, with proper welfare and other services. The first village building program represented something of the latter viewpoint, though some even visualised bringing the people into a handful of large town-like communities, much like the Ilimo camp-settlement, with cooperative agriculture and other modernization. The Orokaiva, so far as their views had been, or could be obtained, appeared to have no crystallised opinion. Because of the factors playing upon them, they were for the time being particularly susceptible to the suggestions of those official and Mission workers who brought the enthusiasm of reformers to the cause of concentration.

731 659 361 199 The writer was asked to give an opinion on this matter. The following points seemed clear, even from a quick view:

1. The loosely organised Orokaiva society has no significant pre-existing socio-political institutions and loyalties beyond the immediate kinship and hamlet alignments. A camp concentration, therefore, remained a congeries of traditional groups, each dealing with Government authority through its senior leader. Officials said that a few particularly strong men of super-local reputation were tending to take leadership in speaking when the "headmen" were brought together for informal camp "councils." But essentially, for purposes of issuing ration and other activities, each small group had to be dealt with as a unit, and otherwise kept its integrity. Here and in the newly formed villages, Government de-

the assumption is that such events are read by a social group as constituting a sign or system of signs.[1]

Such an assumption is legitimate in the case of the eruption of Mount Lamington. In the view of the great majority of my Orokaiva informants, the cataclysmic explosions in the mountain and related volcanic activity were utterances communicating a message. With unimportant exceptions to which I shall refer later, informants took what may be called a religious view of the eruption (Lévi-Strauss 1962:292). They invested with personal will what we would call forces of nature (van der Leeuw 1938:chap. 9). And not only did some Being cause the eruption, but he used it as a means of communication.

Whether it is expedient to study a cataclysm such as the eruption of Mount Lamington as a system of signs emitted by the mountain depends entirely on the quality of the insights that emerge. In this case, field inquiry showed the existence of at least four systems of thought on the significance of the disaster. The adherents of these systems each expressed a different world view consistent with their view of the eruption. The existence of such ideological differences within a single society reflects conflicts which occur not only on the level of discourse but also on that of social transactions.

Such data raise several questions that merit close examination. If all Orokaiva had placed the eruption within one logically consistent framework of meaning, we might believe that we had thus discovered *the* cognitive system of the Orokaiva. In the present case we find four ideologies and explanatory frameworks all generated by the same cognitive system, in the same way that different players may use a variety of strategies while competing with one another in the same game. It then becomes our task to reconstruct this cognitive system and account for a system of interrelated ideologies generated by a sequence of events as interpreted by the cognitive system.

Another question is whether ideological discourse about the cause of the eruption deals with all or some or any of the basic conflicts identified in the society by ethnographic study and analysis. My data, dealing with the period 1951–1966, suggest that Orokaiva ideological discourse was rather selective in the conflicts with which it concerned itself. The conflicts between tribalism and regionalism and between denial and acceptance of the

24: Schwimmer E-5 (1966-1973) 1977
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limit the relevance and power of anthropological study. A cataclysm of such awesome proportions must obviously have had psychological as well as social effects on Orokaiva individuals since the same cataclysm was, after all, experienced in one form or another by everybody. If a culturally homogeneous group has any intellectual facility in the development of common symbols and the transformation of its symbol system, then it is reasonable to suppose that the eruption would have social effects of this less tangible kind.

The Mount Lamington eruption, viewed in this way, offers a case history of theoretical importance. Where the immediate cause of relocation is a natural disaster, we are dealing with contingency in its purest form: an event no sociological (or psychological) theory could possibly predict. Can such an event change the structure of a people's symbolic thought? If it can, then this would cast doubt on any claim that cultural systems are determinate, as they could be changed at any time by unpredictable contingencies. The question whether the content of the symbol systems and social systems of specific cultures is determinate has been raised throughout the work of Lévi-Strauss. Determinacy may be found, however, in the processes of human thought as we seek to comprehend an event, however unpredictable. If our method of understanding humans is the analysis of symbolic thought, then the study of unpredictable contingencies is important in revealing the genesis of symbolic thought.

EXPLANATIONS OF THE DISASTER

I showed in an earlier work that Mount Lamington has long had a central position in the Orokaiva world order (Schwimmer 1969: 5–6). In fact, the Orokaiva regard Mount Lamington as the center of the cosmos. It is the place where, in Orokaiva myth, death, warfare, and fire originated. Many of the transforming deities who are said to have established the rituals and social customs of the Orokaiva came from the crater of this mountain. The division of the populations of the Northern District into tribes or language groups supposedly occurred at the same place. The mountain is called Sumbiripa Kanekari, 'the separation of Sumbiripa', after the myth in which the mountain opened up and split into several unscalable crags. Sumbiripa was hunting on the mountain with

his wife; the two were separated and found themselves on different crags. Sumbiripa became the first man to die, the master of the mountain within which he has since dwelt together with all Orokaiva who died subsequently.[12]

The myth explained the shape of the mountain as it was before the eruption. The crags are not there today because they were blown apart by the eruption. The myth also explained the rumbling of the mountain and the smoke that issued from it long before the eruption of 1951. Such phenomena were regarded as signs sent by Sumbiripa. Ritual prohibitions limited access to the area close to the crater as there was a belief that Sumbiripa, if disturbed, would be angry. There was also a great fear of the dead who were supposedly dwelling in the mountain. It is believed that the dead wander about the countryside, where they may attack humans. Sumbiripa is dangerous, even if he does not erupt, because he can send out his ghosts to cause misfortune among men. The myth about Sumbiripa Kanekari hints at the possibility of an earlier eruption by the account it gives of the origin of the crags existing before 1951.

The sociological importance of the eruption lies largely in the explanations of the event developed afterward by the survivors. These explanations are related to the situation of Orokaiva society in 1951. Here we must distinguish between the situation as it appeared to the Orokaiva individual or to small refugee groups and the collective situation of the Orokaiva tribes as they collectively perceived it, in terms of the basic forces shaping their social life at that period. We may follow Burridge (1960) in identifying these basic forces with the colonial government, planters and traders, the mission, and relations within and between tribal groups.

Immediately after the eruption, the situation for individuals and small groups was dominated by fear of the mountain, grief for dead relatives, and anguish at separation from the land. The situation was influenced, moreover, by abrupt changes in social organization. The Sangara fugitives mostly fled alone or in very small groups, leaving behind their numerous dead; the Sasembata fugitives mostly fled in village groups led by their village constables. While the disaster made the Sangara leaderless, in Sasembata it merely reduced dependence on traditional leaders at the gain of the village constables whose responsibility was greatly increased. Village constables were members of village communities ap-

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Father Albert thought that God sent the eruption as a sign. Orokaiva Christians would generally agree with this view, though none of those interviewed formulated it so clearly.

From the viewpoint of this study, the question whether the Orokaiva considered the eruption as a punishment or as a sign is perhaps not a crucial one. In either case, whoever believes that God was responsible must also believe that a dire fate awaits anyone who fails in his obligations to the mission.

Comparing the three explanations surveyed so far, we note that the Christian explanation, like the Yega one and unlike the Waseta version, attached no significance to tribal divisions. God (like the Sumbiripa of the Yega) makes no distinction between tribes, but he does distinguish between the disobedient Papuans of the region and the administrators and missionaries these Papuans failed to obey. The former are guilty but not the latter.

Christian and Yega theories are opposed as to who is the guilty party. Indeed, the Christian explanation omits all reference to European deaths on the mountain, just as the Yega version suppressed the fact of the Sangara victims. The reason is no doubt the same: rhetoric demands that one should not in the same breath advocate a coalition with the white power bearers and admit that the latter suffered many deaths in circumstances implying their guilt.

With regard to connotations, all three systems differentiate between either tribes or ethnic groups that fell victim to the disaster, even though such differentiation is insignificant for explanatory purposes. If we use a minus sign to designate the social groups classed as guilty and a plus sign for the groups classed as innocent (though in fact the latter, too, suffered serious losses), we find:

	Victims		
Explanation	Waseta	Sangara	European
Waseta	+	−	omitted
Yega	+	+	−
Christian	−	−	+

I shall briefly mention a fourth system, though the explanation it contained was put forward by a small minority and was but feebly believed. Several Orokaiva close to the mission maintain nowadays that the eruption was due solely to geophysical causes. The mission authorites put forward this explanation to counter criti-

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cism from white planters and public servants that the church, by preaching that the eruption was due to God's wrath, is pursuing obscurantist and reprehensible power politics. Orokaiva informants who adopted the geophysical explanation said that before the eruption they did not know about volcanoes but have now learned from the white man that a volcano operates according to certain natural laws.[15]

There is no magico-religious Orokaiva metalanguage in which this explanation can be expressed. On the other hand, its connotation is clear. The explanation marks an informant as highly educated, free of superstition, and a good friend of the whites (including the anthropologist). The explanation connotes that magico-religious theories are old-fashioned and geophysical theories are modern. It divides the social universe into old-fashioned people (whose views have become irrelevant) and modern people (who include the Europeans and a Papuan elite who befriend them). Such a division vitiates the regional unity envisaged by the Yega and Christian explanations.

The connotations of the four explanations I have presented can thus be expressed in a simple model based on two highly significant oppositions which arise in the macrosystem of the Northern District and in the changing system of ethnic boundary maintenance.[16] The first opposition is between refusal and acceptance of a relation of positive reciprocity with Europeans. The second opposition is between tribalism and ideologies envisaging the unity of the Papuan tribes of the region.

Connotation	Explanation			
	Waseta	Yega	Christian	Geophysical
Rejection (−)/acceptance (+) of Europeans	−	−	+	+
Absence (−)/presence (+) of regionalism	−	+	+	−

ANALYSIS OF THE METALANGUAGES

Our next task is to analyze the evidence for Orokaiva systems of thought in which notions like 'the anger of Sumbiripa' and 'the anger of God' become fully comprehensible. We shall soon find

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10. Compare this with the school at Sasembata, which teaches to grade six.
11. A small band of Orokaiva captured European fugitives, including male and female missionaries, and handed them over to the Japanese. The members of this band came from the area east of Mount Lamington inhabited by what Williams called the Sauaha tribe.
12. Though the Sumbiripa cycle of myths was not noted by Williams, I feel confident it existed prior to 1951, partly on evidence given in Schwimmer (1969) and partly on the evidence of a myth recorded in Belshaw (1951).
13. For sources on Orokaiva leadership, see Reay (1953) and Schwimmer (1967).
14. The term "Waseta tribe" used by Williams is perhaps unfortunate, as I demonstrated elsewhere (Schwimmer 1969:49–53). It is used here for the sake of convenience to group together the people from the Waseta area, all of whom were quartered at Ilimo evacuation camp. The name "Waseta" is not used as a tribal name by Orokaiva; it denotes no more than the village where Williams happened to do his fieldwork.
15. See also Waddell and Krinks (1968:16, fn. 3). In the final section of this chapter, I argue that the geophysical explanation is important for anthropological analysis, since it foreshadows structural change in the Orokaiva cognitive system.
16. These two oppositions are, as I understand it, singled out for detailed study in most of the chapters in this comparative volume. Unfortunately, a more detailed discussion is impossible in this chapter. Transactions between government and people during the relocation process have been described fully in Schwimmer (1969), including the massive administration intervention in the evacuation camps, the changes of location of government and mission centers after the eruption, and the gradual widening of the scope of government and mission activities. In my earlier report, I also referred in detail to the manner in which the relation between whites and Papuans is mediated by Papuan mission teachers, village constables, and other functionaries. On an ideological level the entire 'new age' rhetoric discussed in this chapter may be regarded as a form of mediation between microsystem and macrosystem.

With regard to boundary maintenance, empirical evidence is available in my earlier report about the relations between the evacuees and the people among whom they lived. At Ilimo something akin to traditional friendly host-guest relations were established. I stress in the present essay the ambiguity of the boundary maintenance patterns. There is an ideology advocating unity and there is increasing evidence of common action, especially in the context of formal organizations set up under the influence of administration and mission, while individual webs of intertribal relationships tend to become denser as a result of migration associated with schooling, employment, and so forth. At the same time, tribalism is still the underlying principle in most transactional contexts.

17. This does not contradict my earlier statement (1969:66) that there was a brief period when the evacuees feared the government would take their land. Kaad reported to me that this fear existed, and I do not doubt it. In